

CLAIMS

1. A metrology instrument for mounting on a coordinate position apparatus, the metrology instrument being at least partially constructed from at least one sheet of thermally stable metallic material which is folded to form a three dimensional structure, the at least one sheet of thermally stable material being utilised in the metrology loop of the metrology instrument.
2. A metrology instrument according to claim 1 wherein the thermally stable material has a coefficient of thermal expansion of ≤ about 15.0 ppm/°C.
3. A metrology instrument according to claim 2 wherein the thermally stable material has a coefficient of thermal expansion of ≤ about 6ppm/°C.
4. A metrology instrument according to claim 3 wherein the thermally stable material has a coefficient of thermal expansion of ≤ about 2ppm/°C.
5. A metrology instrument according to any preceding claim wherein the three dimensional structure includes at least one walled cavity.
6. A metrology instrument according to claim 5 wherein the walled cavity is filled with a low mass filler.
7. A metrology instrument according to any preceding claims wherein the at least one sheet is ≤ about 1.5mm

thick.

8. A metrology instrument according to claim 7
wherein the at least one sheet is between about 0.05 -
5 about 0.9mm thick.

9. A metrology instrument according to claim 7
wherein the at least one sheet is between about 0.1 -
about 0.5mm thick.

10 10. A metrology instrument according to any preceding
claim wherein the metrology instrument comprises a
measurement probe.

15 11. A metrology instrument according to any of claims
1-9 wherein the metrology instrument comprises a stylus
arm.

20 12. A metrology instrument according to any of claims
1-9 wherein the metrology instrument comprises a probe
head.

25 13. A metrology instrument according to claim 12
wherein the at least one sheet of material comprises
thermally stable material and is located between a
fixed surface of the probe head and the arm of the
coordinate positioning apparatus.

30 14. A metrology instrument according to claim 13
wherein the structure of the at least one sheet of
material is such that it at least partially encloses
the fixed structure of the probe head.

15. A method of manufacture of a metrology instrument

comprising:

providing at least one template of the metrology instrument from a sheet of thermally stable metallic material;

5 folding the at least one template to produce the metrology instrument.

16. A method according to claim 15 wherein the sheet of material is made from a thermally stable material.

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17. A method according to any of claims 15 or 16 wherein the location of the folds are determined by creating a series of perforations along the desired fold line of the sheet of material.

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18. A method according to any of claims 15 or 16 wherein the location of the folds are determined by creating a fold line of partial thickness in the sheet of material.

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19. A method according to any of claims 15-18 wherein parts of the folded sheet material are joined together by dip soldering.

25 20. A method according to any of claims 15-19 wherein the template is formed from an etching process.

21. A method according to any of claims 15-19 wherein the template is cut from a sheet of material by a
30 laser.

22. A method according to claim 21 wherein the template is cut form a sheet of material by a laser combined with a water jet.

23. A probe head for mounting on a coordinate position apparatus, wherein a structure comprising at least one sheet of thermally stable material is located within
5 the metrology loop between a fixed surface of the probe head and the arm of the coordinate positioning apparatus.
24. A probe head according to claim 23 wherein the
10 structure of the at least one sheet of material is such that it at least partially encloses the fixed structure of the probe head.
25. A probe head according to either of claims 23 or
15 24 wherein the structure is formed from folding the at least one sheet of material.